

REMARKS

Applicant appreciates the Examiner's thorough consideration provided the present application. Claims 8-15 are now present in the application. No claims have been amended in this Reply. Claim 8 is independent. Reconsideration of this application is respectfully requested.

Priority Under 35 U.S.C. §119

Applicant thanks the Examiner for acknowledging Applicant's claim for foreign priority under 35 U.S.C. §119. However, the Examiner indicated that a certified copy of priority document has not been submitted.

Applicant respectfully submits that the present application is a National Stage Application of the PCT Application No. PCT/DK/2004/00526 and the certified copy of priority document (PA 2003 01136) should have been obtained from the International Bureau. The PCT/IB/304 form (see Attachment I) submitted on February 3, 2006 also clearly indicates that the certified copy of priority document (PA 2003 01136) has been received by the regional office/PCT receiving office. For the Examiner's reference, attached please find a copy of the certified copy of priority document (PA 2003 01136) downloaded from WIPO's website. Acknowledgement thereof in the next Office Action is respectfully requested.

Information Disclosure Citation

Applicant thanks the Examiner for considering the references supplied with the Information Disclosure Statement filed on February 3, 2006, and for providing Applicant with an initialed copy of the PTO-1449 form filed therewith.

Drawings

The Examiner did not indicate whether or not the formal drawings have been accepted. Since no objection has been received, Applicant assumes that the drawings are acceptable and that no further action is necessary. Confirmation thereof in the next Office Action is respectfully requested.

Claim Rejections Under 35 U.S.C. § 103

Claims 1-15 [sic., claims 8-15] stand rejected under 35 U.S.C. §103(a) as being unpatentable over Marley, U.S. Patent No. 4,783,807, in view of Olsen, U.S. Patent No. 2,971,058. This rejection is respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

Independent claim 1 recites a combination of elements including "providing at least one frequency-bandwidth limited portion of the input signal, determining, for each of the at least one frequency-bandwidth limited portion of the input signal, durations of a predetermined number of half-periods and signal magnitudes during respective predetermined number of determined half-periods, and determining a distribution of the signal magnitudes as a function of their durations of the predetermined number of half-periods."

Applicant respectfully submits that the combination of elements set forth in claim 8 is not disclosed or suggested by the references relied on by the Examiner.

In particular, the Examiner alleged that Marley in FIGs. 1 and 2 and various paragraphs of the specification discloses determining a distribution of the signal magnitudes as a function of their durations of the predetermined time. Applicant respectfully disagrees.

In particular, Marley in FIGs. 1 and 2 and col. 8, lines 58-66 discloses an audio band-pass filter 5 and an inflection point detector 8 that operates with an analogue signal 33 and a digital signal 44c, and the digital signal is processed by the input capture register 11 for segment analysis. This input capture register 11 operates as stated in col. 8, lines 49-62 and is evidence that the binary signal represents timing information - information about when major inflection points (i.e., a change from a negative to a positive pressure portion) occur in the analogue speech signal. Marley in col. 4, lines 1-48 further discloses how the binary signal is defined by negative pressure wave portions ("0" level) and positive pressure wave portions ("1" level) at the inflection points (see also FIG. 2). In other words, Marley simply discloses a band-pass limited signal that is converted into a binary signal. As shown in FIG. 2 of Marley, by following the dashed lines, the transitions in the binary signal 44c are related to the points of inflection of the analogue signal 33. However, this is simply a determination of time duration of the positive and negative slopes of the speech waveform, not a determination of magnitudes (amplitude characteristics) of the speech waveform as recited in claim 8.

In addition, Marley in col. 10, lines 24-45 discloses:

In contrast, my circuitry is very insensitive to wide variations of the amplitude of the analog speech signals, contrary to the majority of the teachings in the literature and prior art pertaining to speech recognition to the effect that the primary technique for demarcation between phonetic elements is by sensing or observing the amplitude envelope of the speech waveform.

In further contrast, I have found that by using the time duration of the positive and negative slopes of the speech waveform, the rate of change or acceleration of these durations can be analyzed to provide better demarcation between phonemic elements of speech, and presumably other highly

characteristic features of other sound waveforms. In addition, I have found that changes in the pitch due to stress accenting of speech also aids in the demarcation of connected phonetic elements.

The above described approach allows producing of digital signals that are easily handled and analyzed by microcomputer 10, thereby avoiding the difficulties in accurate analysis of analog signals having rapidly varying amplitudes. (Emphasis added).

In other words, Marley discloses that the circuitry is very *insensitive* to wide variations of the *amplitude* of the analog speech signals and *accurate analysis of analog signals having rapidly varying amplitudes is avoided*. This clearly indicates that Marley's circuitry cannot determine a distribution of the signal magnitudes as a function of their durations of the predetermined time as the Examiner alleged due to its insensitivity to wide variations of the *amplitude* of the analog speech signals. Therefore, Marley fails to teach "determining a distribution of the signal magnitudes as a function of their durations of the predetermined number of half-periods" as recited in claim 8.

In addition, the Examiner has correctly acknowledged that Marley fails to teach the period where the analysis is made. The Examiner turned to rely on Olsen and alleged that Olsen can cure the deficiencies of Marley. Again, Applicant respectfully disagrees.

In particular, Olsen in FIG. 1 discloses a graph showing the frequency, time and amplitude characteristics of a vowel sound at discrete frequencies and at discrete steps of time, and in col. 2, lines 45-46 discloses "the steps of time are not fixed or predetermined, but are determined by changes in the acoustic spectrum."

In addition, Olsen in FIG. 2 discloses a frequency selective network that divides a speech signal into multiple band-limited signals which control respective relays that are further controlled by a sequence switch 42 that sequentially connects the multiple band-limited signals to different respective relays (see also col. 2, lines 67-72). The sequence switch moves to a next

time interval (a next set of relays; i.e., the relays are the "time axis") when there is a change in the spectrum. The relays will not be actuated unless there is a sufficient current to open or close it. Therefore, Olsen teaches a system where a speech signal is materialized as a binary signal (determined by open or closed relays) along two axes: time and frequency, both divided into discrete steps or bands. This binary signal is probably convenient for controlling a typewriter as stated. However, Olsen does not teach or disclose any means for determining a frequency of occurrence for the signal magnitude values. There is no disclosure of any means for accumulating or counting values and no disclosure of means for determining the magnitude of amplitudes.

In fact, Olsen in col. 3, lines. 39-40 and 40-45 teaches that a compressor to maintain a relatively constant output level over a wide range of input levels must be provided. However, such compression would degrade the analytical value of determining a distribution. Therefore, Olsen actually teaches away from the claimed invention.

Accordingly, neither of the utilized references individually or in combination teaches or suggests the limitations of independent claim 8. Therefore, Applicant respectfully submits that independent claim 8 clearly defines over the teachings of the utilized references.

In addition, claims 9-15 depend, either directly or indirectly, from independent claims 8, and are therefore allowable based on their respective dependence from independent claim 8, which is believed to be allowable.

In view of the above remarks, Applicant respectfully submits that claims 8-15 clearly define the present invention over the references relied on by the Examiner. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 103 are respectfully requested.

Additional Cited References

Since the remaining patents cited by the Examiner have not been utilized to reject the claims, but rather to merely show the state of the art, no further comments are necessary with respect thereto.

CONCLUSION

All the stated grounds of rejection have been properly traversed and/or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently pending rejections and that they be withdrawn.

It is believed that a full and complete response has been made to the Office Action, and that as such, the Examiner is respectfully requested to send the application to Issue.

In the event there are any matters remaining in this application, the Examiner is invited to contact Cheng-Kang (Greg) Hsu, Registration No. 61,007 at (703) 205-8000 in the Washington, D.C. area.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant respectfully petitions for a two (2) month extension of time for filing a response in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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Attachments: I. A Copy of PCT/IB/304 Form

II. A Copy of Certified Copy of Foreign Priority Document

